Zonet®

ZVC7610

IP Camera

USER MANUAL

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Chapter 1

Introduction

Thank you for purchasing ZVC7610, a powerful and high-quality image IP camera. ZVC7610 can be installed as a standalone system within your application environment easily and quickly, and supports remote management function so that you can access and control it using a Web browser on your computer.

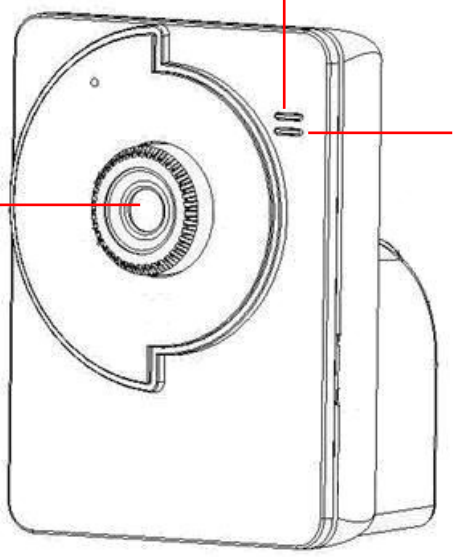
1.1 Package Contents

Check the items contained in the package carefully before installation.

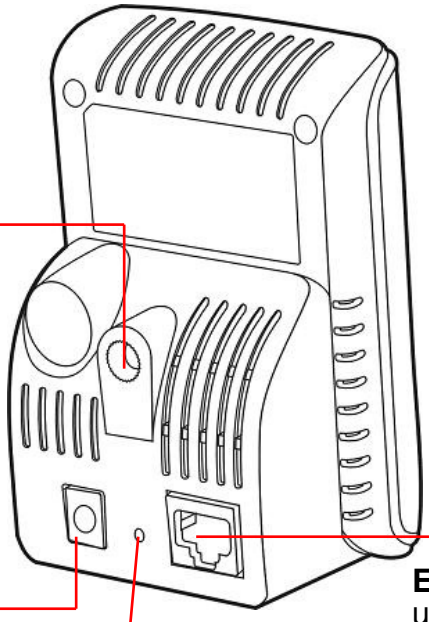
- One ZVC7610
- One AC Power Adapter
- One Camera Stand.
- One RJ-45 Ethernet Cable
- One Installation CD w/ User Manual
- One Quick Installation Guide.

NOTE: Contact your local authorized reseller or the store purchased from for any items damaged and/or missing.

1.2 Know Your ZVC7610


Power LED indicates ZVC7610 is power ON with the steady amber light.
Link LED indicates ZVC7610 network connectivity with the flashing green light.
Lens Assembly

Front View


Screw Hole is used to connect your ZVC7610 to the camera stand.
Power Connector Connects the AC Power Adapter
Reset Button will reset the ZVC7610. Press and hold the button for 5 seconds to the factory default settings.
Ethernet Cable Connector is used to connect the RJ-45 Ethernet cable which supports the NWay protocol for the ZVC7610 to detect the network speed automatically.

Rear View

1.3 Features and Benefits

- **Surveillance Supported**
  ZVC7610 supports "nightshot mode" to deliver clearer images in the dark environment. Enable motion detection and setup automated email alerts and upload FTP for security.

- **Remote Control Support**
  Use your standard web browser or the bundled software "Ultra View", an administrator can easily change the configuration of ZVC7610 over the network. In addition, ZVC7610 can be upgraded remotely when a new firmware is available. Normal users can also monitor the image and take snapshots via the network.

- **External Devices Support**
  You can connect the ZVC7610 to a variety of external devices with the auxiliary Input/Output connectors, such as external speaker and other USB devices.

- **Multiple Platforms Support**
  ZVC7610 supports multiple network protocols – TCP/IP, SMTP, HTTP, and other Internet related protocols. You can use it in a mixed operating system environment, such as Windows 2000 and Windows XP.

- **Multiple Applications Support**
  Through the remote access technology, you can monitor various objects and places for different purposes with ZVC7610. For example, babies at home, patients in the hospital, offices, banks, and many more. ZVC7610 can capture images and video clips, and you can save and restore them any time.

1.4 System Requirements

- **Networking**
  LAN: 10Base-T Ethernet / 100Base-TX Fast Ethernet

- **Accessing the Camera using Web Browser**
  Platform: Windows 2000/XP/Vista, Macintosh OSX
  CPU: Intel Pentium III 350MHz or above
  RAM: 128MB or above
  VGA Resolution: 800x600 or above
  Web browser support: Internet Explorer 6.0 or above, Mozilla Firefox 2.00 or above, Apple Safari 2 or above

- **Accessing the Camera using *Ultra View***
  Platform: Windows 2000/XP/Vista

- **Hardware Requirements**

  One ZVC7610:
  Intel P-III 800MHz / 512MB RAM or above

  Two to Four ZVC7610:
  Intel P-4 1.3GHz / 512MB RAM or above

  Five to Eight ZVC7610:
  Intel P-4 2.4GHz / 1GB RAM or above

  Nine to Sixteen ZVC7610:
  Intel P-4 3.4GHz / 2GB RAM or above

  VGA Resolution: 1024x768 or above

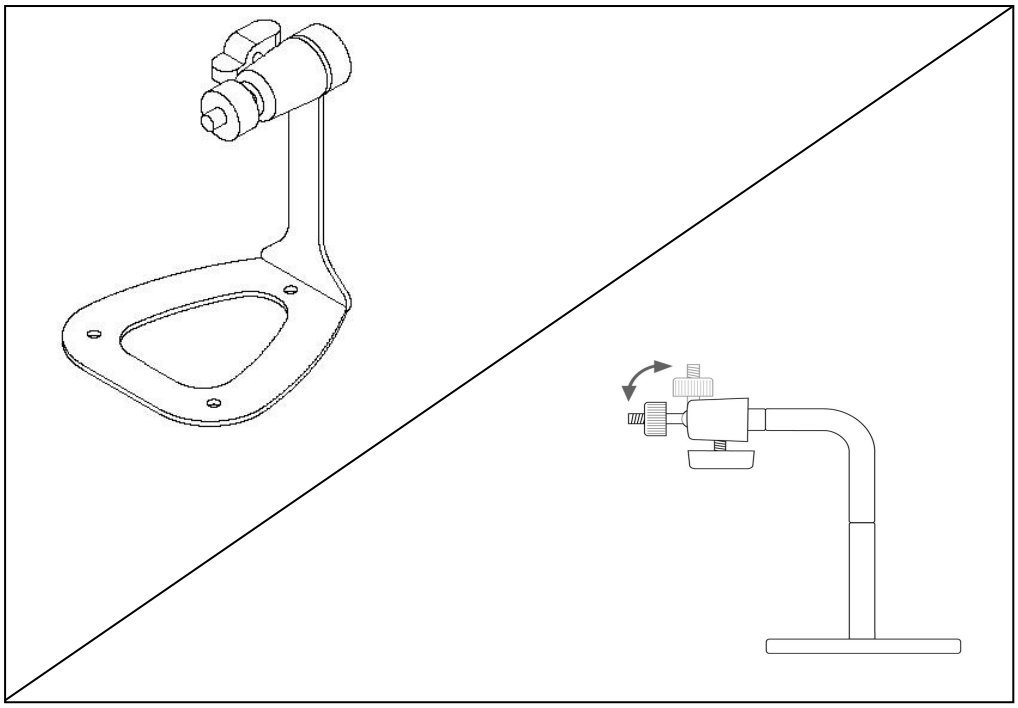
NOTE: If you connect multiple ZVC7610 to monitor different places in the same time, we recommended you to use a higher performance computer for better result.

Chapter 2

Hardware Installation

2.1 Camera Stand Installation

ZVC7610 comes with a Camera Stand which uses a swivel ball screw head to lock the screw-holes at the back of the unit. When the stand is attached to your ZVC7610, you can place it anywhere by mounting it through the three screw-holes at the bottom of the Camera Stand.

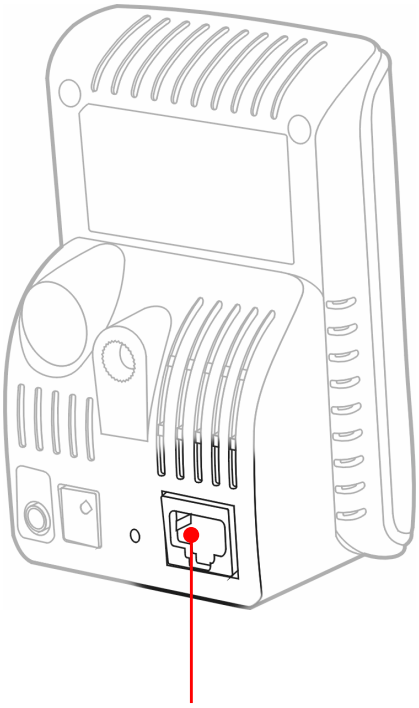


Camera Stand

2.2 Connecting ZVC7610 to Your Network

Use the provided RJ-45 Ethernet cable to connect the ZVC7610 to your network. The ZVC7610 will power ON automatically after you connect the AC Power Adapter to the power connector. You may verify the power status from the Power LED on the front panel.

Once you completed the connection, Link LED will start flash in green, ZVC7610 is at standby mode, and it is ready to use.



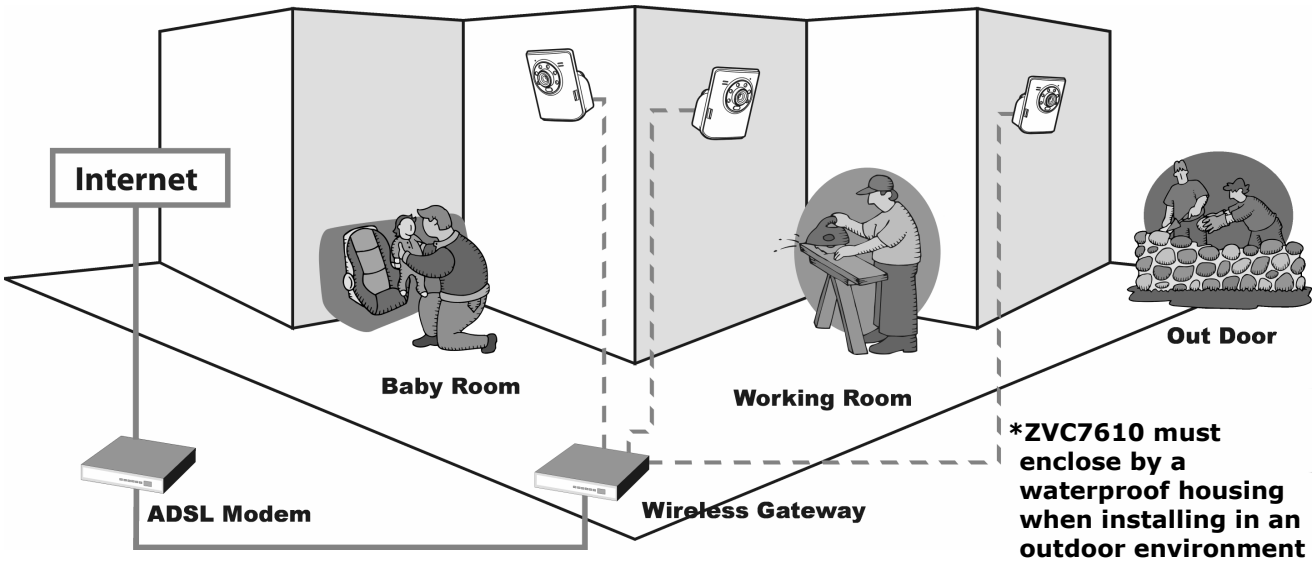
RJ-45 Ethernet Cable Connector

2.3 ZVC7610 Application Example

ZVC7610 can be applied in multiple applications, including but not limited to the followings:

- Monitor different places and objects via Internet or Intranet locally and remotely.
- Capture images and video clips remotely.
- Upload images and email messages with the images.

The following diagram explains one of the most typical applications for the ZVC7610. It also provides a basic example of the ZVC7610 installation.



Home Applications

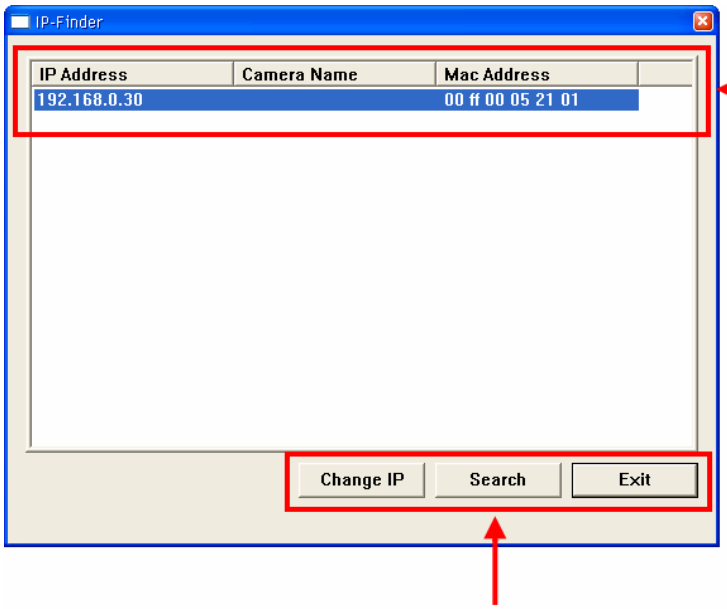
Chapter 3

Access your ZVC7610

3.1 Use IP Finder

ZVC7610 comes with an easy to use utility, **IP Finder**, in the Installation CD. It allows you to find the ZVC7610 on your network easily.

1. Insert the Installation CD to CD-ROM drive and initiate the Auto-Run program
2. Double-click the **IP Finder** to launch the utility. The control panel will appear as below.



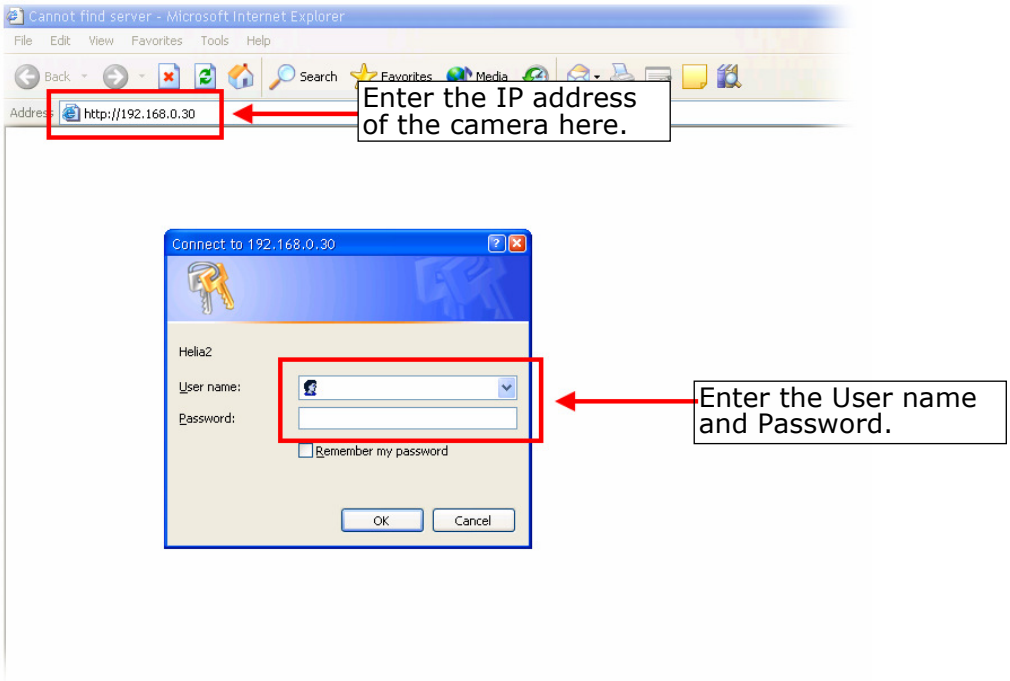
Display all connected ZVC7610(s)

Click **Search** to find the IP address of the connected ZVC7610(s)
Click **Change IP** to modify the IP address of the selected ZVC7610
Click **Exit** to close the utility

3. Once you have the IP address of the ZVC7610(s), you may use your web browser or ***Ultra View*** to access it.

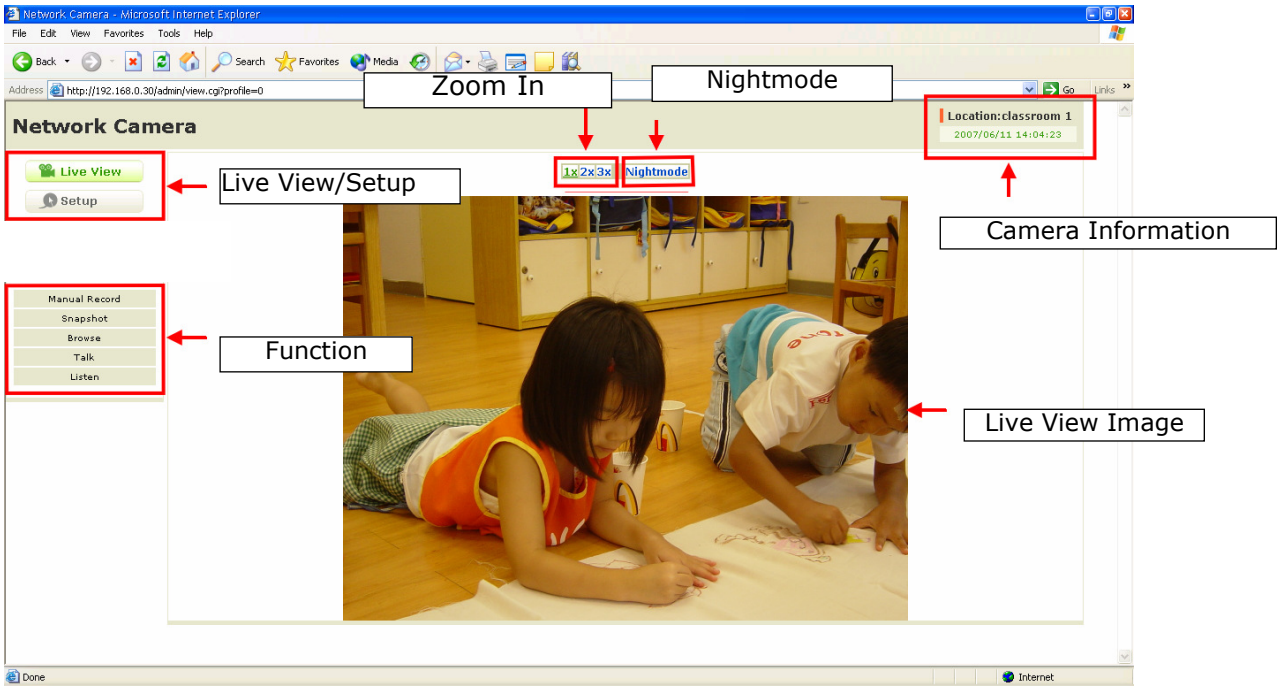
3.2 Login to your ZVC7610

1. Open your web browser and enter the ZVC7610 IP address on the address bar.
   a. Default IP address: http://192.168.0.30 then press [Enter]
2. The login window will appear, enter the username and password then press **OK** to access to the main screen of the ZVC7610 Web Configuration.
   a. Default Username: **admin** (all lowercases)
   b. Default Password: **admin** (all lowercases)



*NOTE: If this is the first time you access the ZVC7610, you will be asked to install a new plug-in. Permission request depends on the Internet security settings of your browser. Please click **Yes** to proceed.*

After you login into the ZVC7610 Web Configuration main screen, the following screen will appear.



The Web Configuration provides you with many useful information and functions, including:

- **Camera Information** – Display the location of your ZVC7610 with the current date & time. This information can be modified in the Web Configuration.
- **Live View Image** – Displays a real-time image of the connected ZVC7610.
- **Live View/Setup Switch** – Click **Setup** to configure the ZVC7610. See Chapter 4 for more details.
- **Function Button** – Use these buttons to control the video functions.
  - **Manual Record** allows you to record and save a video clip
  - **Snapshot** allows you to capture and save an image
  - **Browse** allows you to save the video clips and image to a designated folder
- **Zoom In Button** – Click the button to zoom in / out the live view image by 1x, 2x, and 3x
- **Nightmode Button** – Click the button to enable the “Nightshot mode” to deliver clearer images in the dark environment. However, this will also reduce the frame rate of the video setting.

3.3 IP Address Configuration

You have to check the IP address of your computer if you failed to access the ZVC7610. When connecting the ZVC7610 directly to your computer, you have to set up your computer IP address within the same subnet in order for them to communicate correctly.

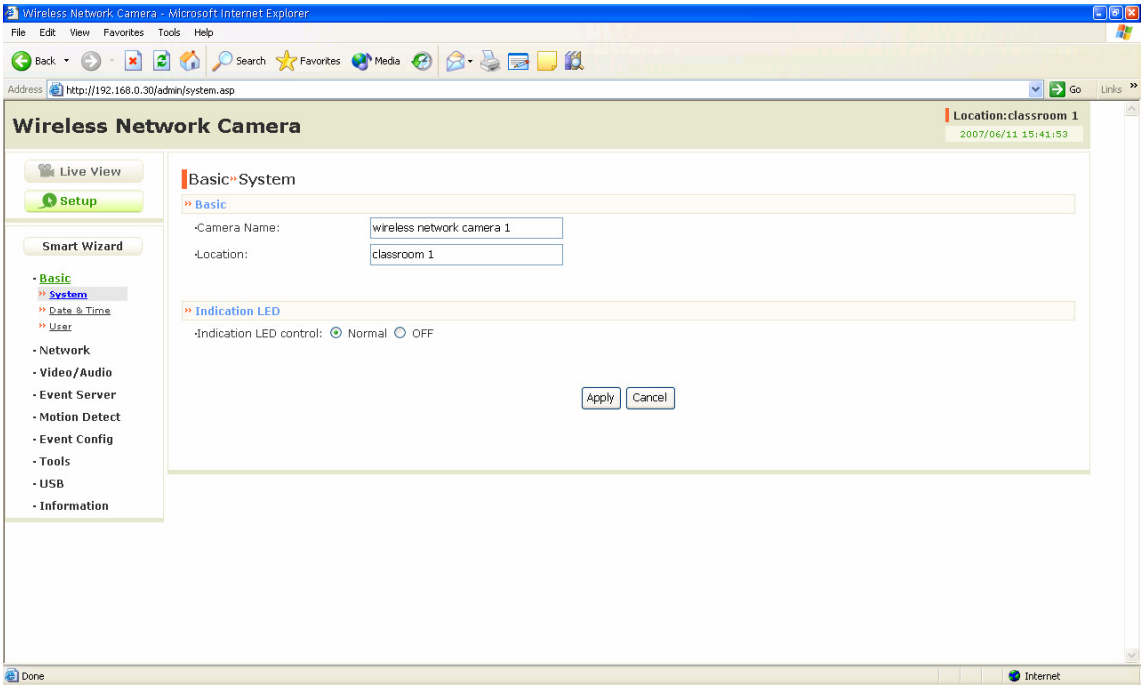
1. On your computer, click **Start > Control Panel** to open the Control Panel window
2. Double-click **Network Connection** to open the Network Connection window
3. Right-click **Local Area Connection** and click **Properties**, then select the **General** tab
4. Select **Internet Protocol [TCP/IP]** and click **Properties** to bring up the Internet Protocol [TCP/IP] Properties window
5. Configure a fixed IP address that is within the same subnet of the ZVC7610. Select **Use the following IP address** option and enter an IP address and Subnet Mask into the empty field, for example: IP Address is 192.168.0.x where x is between 0~254 except 30 and Subnet Mask is 255.255.255.0.
6. Click **OK** after you finish.

Chapter 4

ZVC7610 Configuration

4.1 Using the Web Browser

To configure the ZVC7610 with your web browser, click **Setup** on the main page. The Web Configuration will start from the **Basic** page.



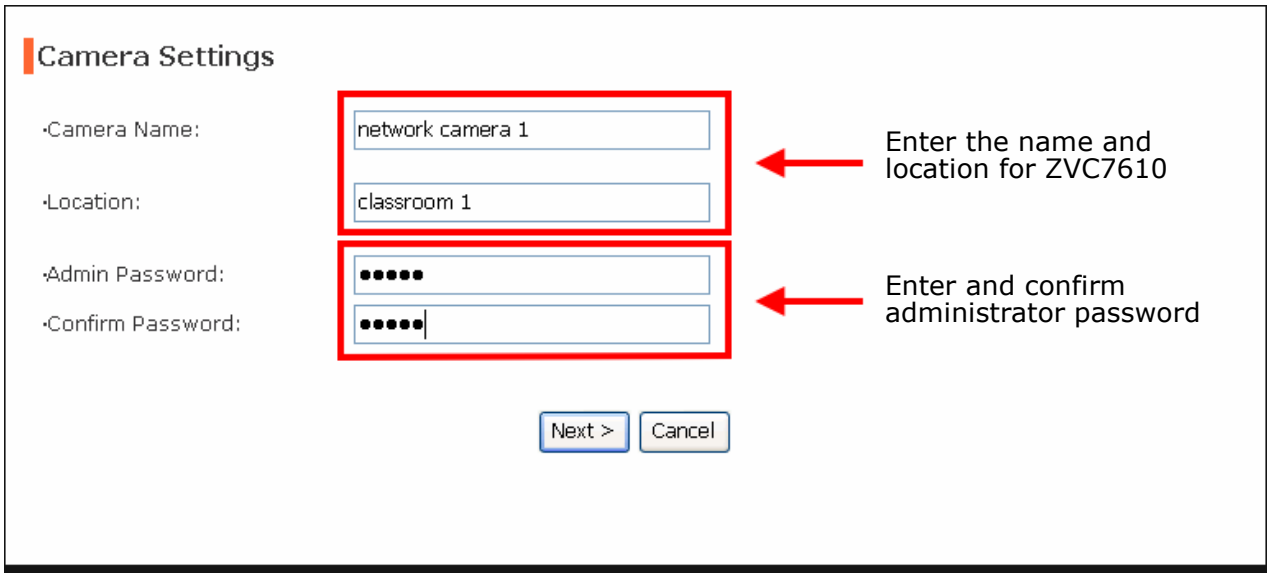
The Web Configuration contains settings that are required for the ZVC7610 in the left menu bar, Smart Wizard, Basic, Network, Video, Event Server, Motion detect, Event Config, Tools, and Information.

4.2 Using Smart Wizard

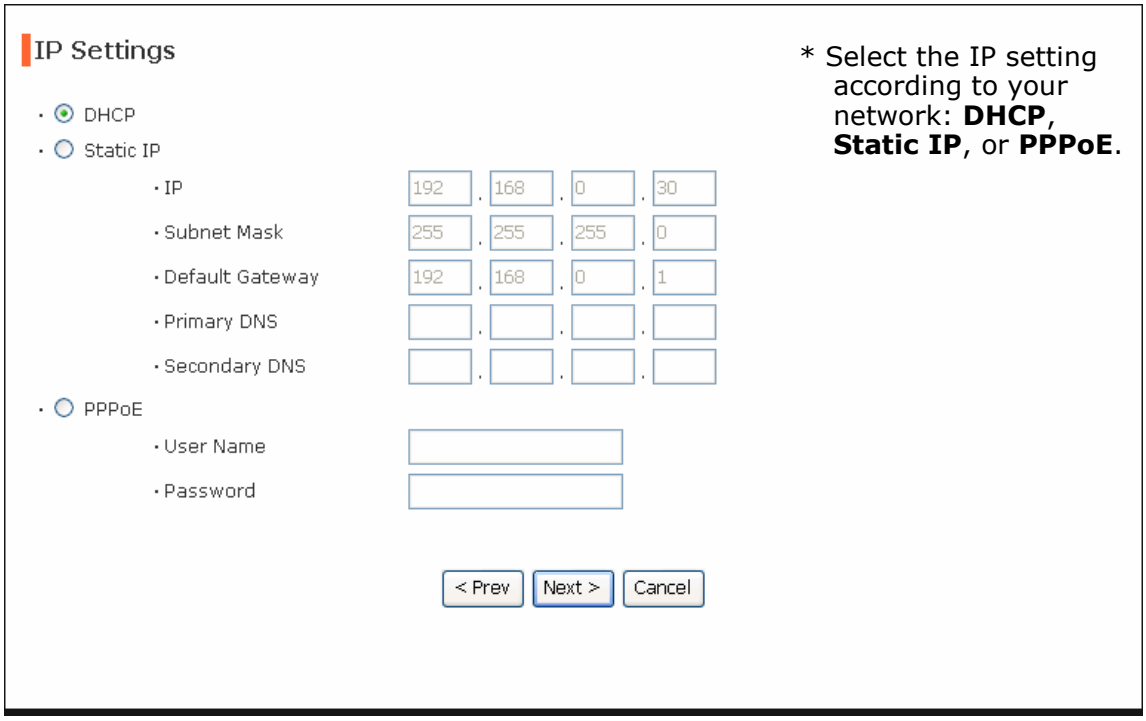
ZVC7610 Smart Wizard lets you configure the camera easily and quickly. The wizard will guide you through the necessary settings in detailed instructions of each step.

To start the wizard, click **Smart Wizard** in the left menu bar.

Step 1. Camera Settings

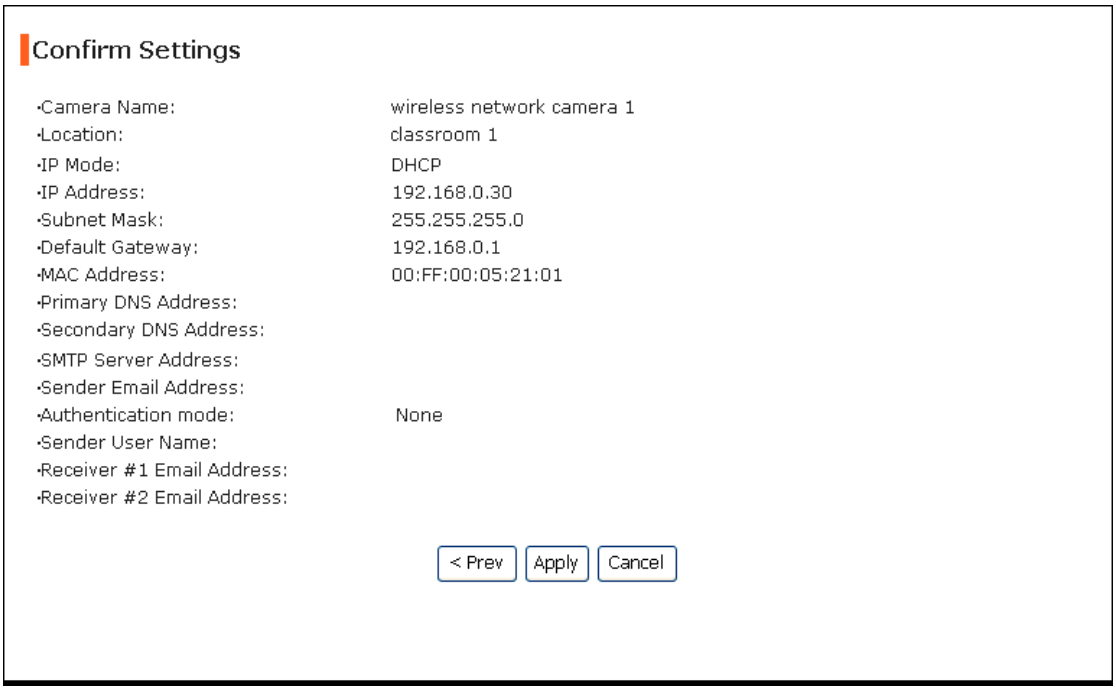


Step 2. IP Settings


IP Settings
· DHCP
· Static IP
· IP
192 . 168 . 0 . 30
· Subnet Mask
255 . 255 . 255 . 0
· Default Gateway
192 . 168 . 0 . 1
· Primary DNS
· Secondary DNS
· PPPoE
· User Name
· Password
< Prev
Next >
Cancel
* Select the IP setting according to your network: **DHCP**, **Static IP**, or **PPPoE**.

Step 3. Email Settings

Step 4. Confirm Settings



The last step shows the configuration of your ZVC7610. After all settings are confirmed, click **Apply** to finish the wizard and it will reboot the ZVC7610 automatically. Click **<Prev** to go back and make necessary changes, or click **Cancel** to undo/discard all changes.

4.3 Basic Setup

The Basic menu contains three sub-menus, Camera Name, Location, Date & Time, and User management.

Basic >> System

- **Basic**
  - **Camera Name:** Enter a description for your ZVC7610
  - **Location:** Enter a description of your ZVC7610 location
- **Indication LED**

  It allows you to set LED illumination as your desired. There are two options: **Normal** and **OFF**.

Basic >> Date & Time

- **Date & Time**
  - **TimeZone:** Select the proper time zone for the region from the drop-down menu.
  - **Synchronize with PC:** Select this option to synchronize the ZVC7610 date & time with the connected computer.
  - **Synchronize with NTP Server:** Select this option to synchronize the time with the NTP Server. You have to enter an IP address of the server then select the update interval.
  - **Manual:** Select this option to enter the ZVC7610 date and time manually.

Basic >> User

- **Administrator**

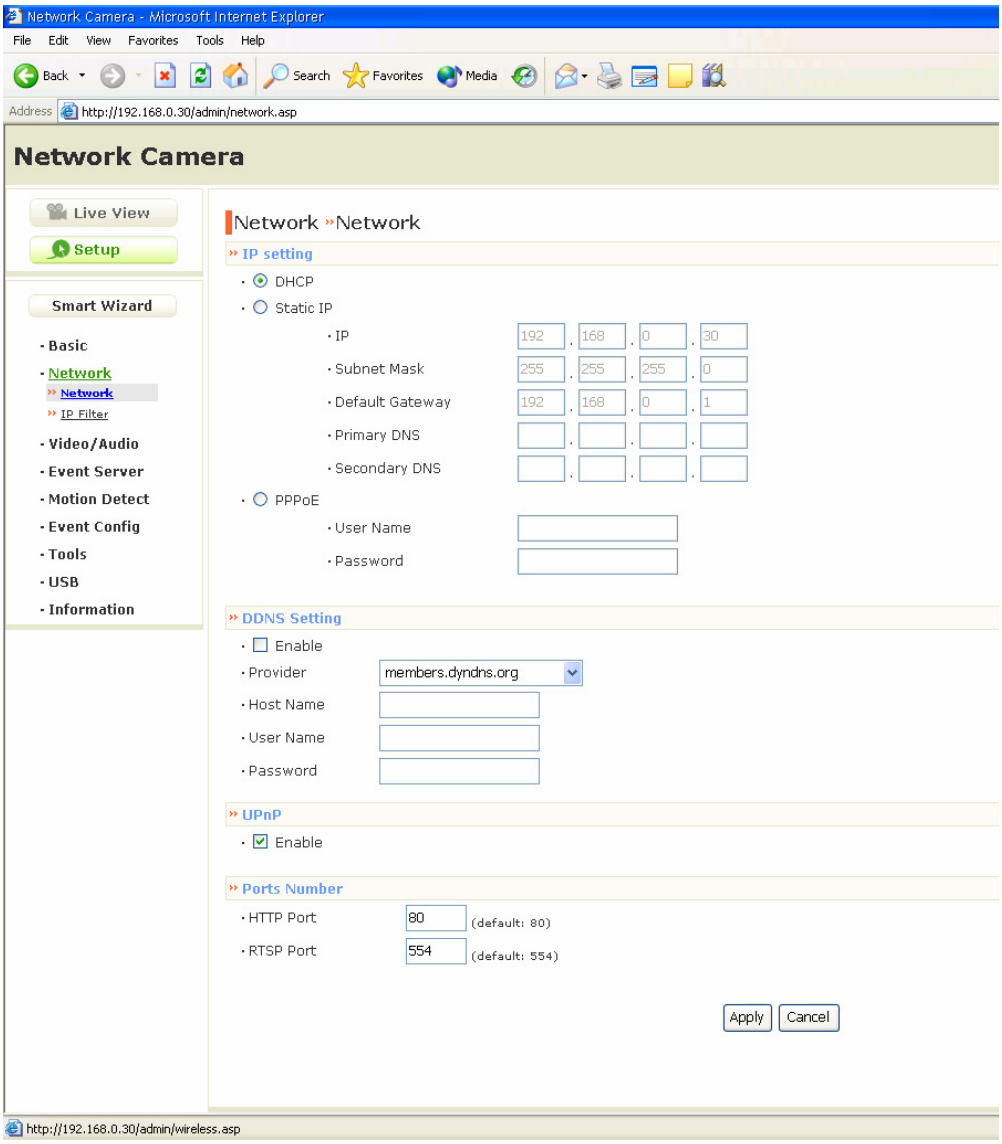
  To prevent unauthorized access to your ZVC7610 Web Configuration, we strongly recommended you to change the default administrator password. Enter the administrator password twice to set and confirm it.
- **General User**
  - **Username:** Enter and add more users to allow access to your ZVC7610 in a regular basis
  - **Password:** Enter the password for the new user(s)

    Click **Add**/**Modify** to add the new user to the camera after you are finished. To modify the user's information, select the username from the **UserList** and click **Add**/**Modify**.
  - **UserList:** Display all existing users of the ZVC7610. To delete a user, select the username you want to delete and click **Delete**.
- **Guest**
  - **User Name:** Enter the guest's name to access your ZVC7610
  - **Password:** Enter the password for the new guest.
  - **UserList:** Display the existing guests of your ZVC7610. To delete a guest, select the name and click **Delete**.

NOTE: "General User" can access and use the Function buttons
"Guest' can view live view images from the Web Configuration only
"Administrator" has full control of the Web Configuration

4.4 Network Settings

The Network menu contains three sub-menus, such as IP Setting, DDNS Setting, and IP Filter.



Network >> Network

IP Setting allows you to select an IP address mode to set up the configuration accordingly.

- **DHCP:** Select this option when your network uses the DHCP server. When ZVC7610 starts up, it will get from the DHCP server automatically.
- **Static IP:** Select this option and enter an IP address manually. You can use IP Finder to obtain the setting values.

IP	Enter IP Address of ZVC7610 Default IP Address: 192.168.0.30
Subnet Mask	Enter Subnet Mask of ZVC7610 Default Subnet Mask: 255.255.255.0
Default Gateway	Enter Default Gateway of ZVC7610 Default address: 192.168.0.1
Primary/ Secondary DNS	DNS (Domain Name System) translates domain names into IP addresses. Enter the Primary and Secondary DNS that provided by ISP.

- **PPPoE:** Select this option when you use a direct connection via the ADSL modem. Enter your PPPoE Account **User Name** and **Password**. ZVC7610 will get the IP address from your ISP when starting up.

NOTE: When setting up the IP Setting with PPPoE account, ZVC7610 gets the IP address from your ISP during start up and will send a notification email to you automatically. Therefore, you have to setup email/DDNS in advanced when using PPPoE as your connection type.

DDNS Setting allows you to assign a fixed host and domain name to a dynamic Internet IP address. Select **Enable** to use this feature. Then select the Provider from the drop-down list. Enter the required information to the **Host Name**, **User Name**, and **Password** boxes. You must sign-up for a DDNS service with a DDNS provider in advanced.

- **UPnP**

  ZVC7610 supports UPnP (Universal Plug and Play) which enables device-to-device interoperability from a set of computer network protocols. It also supports port auto mapping function so that you can access the ZVC7610 even it is behind an NAT router or a firewall. Select **Enable** to enable this feature.

- **Ports Number**

  - **HTTP Port:** Default HTTP port is **80**

NOTE: We suggested to use port 1024 ~ 65535 if ZVC7610 is behind an NAT router or a firewall.

Network >> IP Filter

The IP Filter setting allows the administrator limits users within a range of IP address to access the ZVC7610.

- **Start/End IP Address**

  Assign a range of IP address that is NOT allowed to access the ZVC7610. Enter the Start IP address and End IP address. Click **Add** to save the setting. You can repeat this step to assign more than one range of IP address.

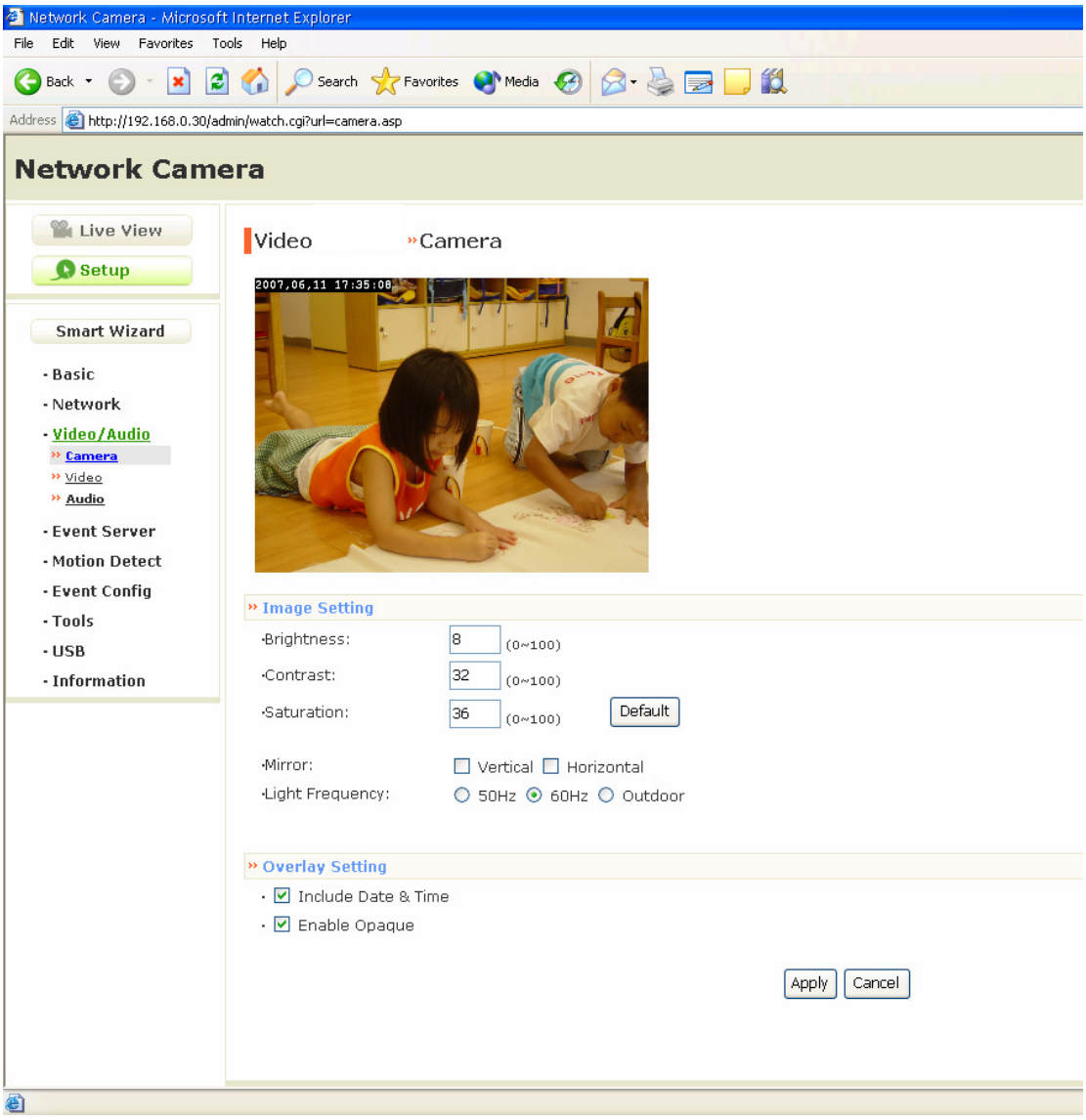
  For example, when you enter 192.168.0.50 for the Start IP Address and 192.168.0.80 for the End IP Address, all computers whose IP address set within 192.168.0.50 ~ 192.168.0.80 will NOT be able to access the ZVC7610.

- **Deny IP List**

  It displays all of the IP addresses that are NOT allow to access the ZVC7610. Click **Delete** to clear range of IP address or a single IP address.

4.5 Video Setup

Video menu contains three sub-menus that provide video settings for the ZVC7610.



Video >> Camera

- **Image Setting**
  - **Brightness:** Adjust the brightness level from 0 ~ 100
  - **Contrast:** Adjust the contrast level from 0 ~ 100
  - **Saturation:** Adjust the colors level from 0 ~ 100

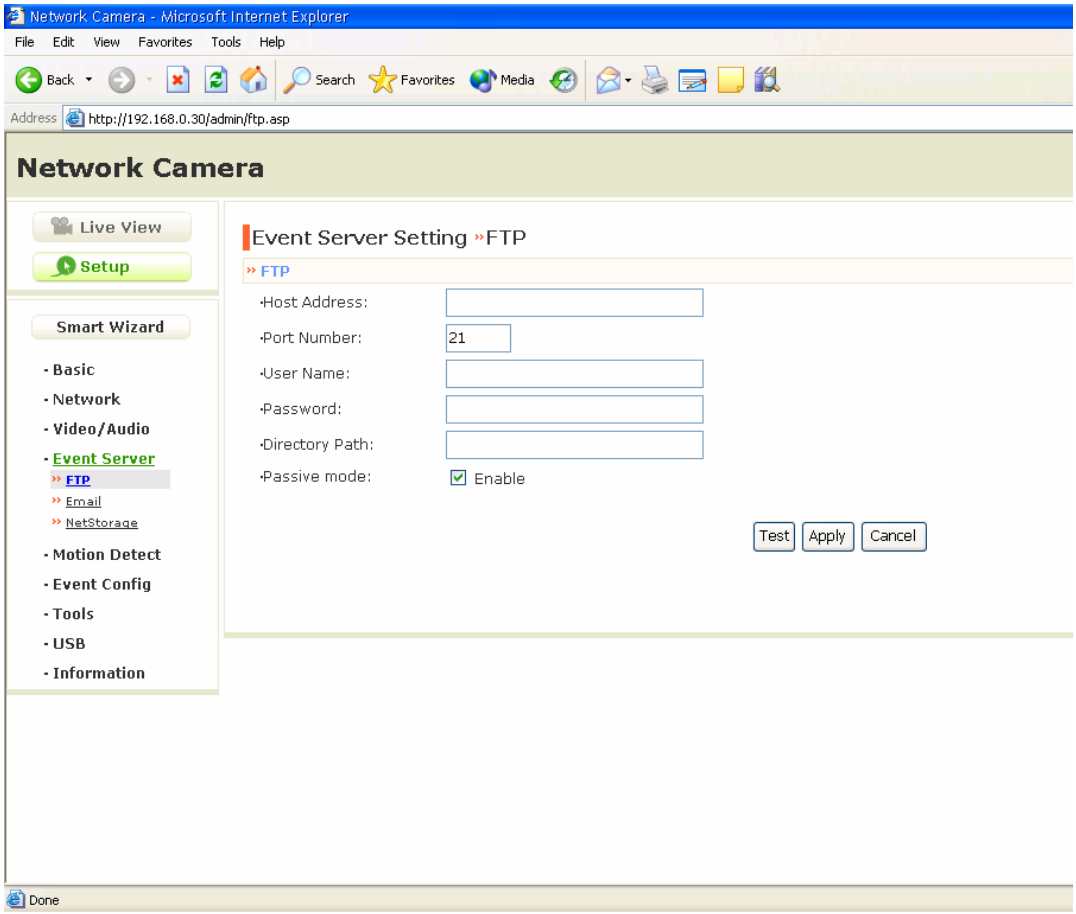
    Click **Default** to restore the default settings of the three options above.
  - **Mirror:** Select **Horizontal** to mirror the image horizontally. Select **Vertical** to mirror the image vertically
  - **Light Frequency:** Select the proper frequency according to the location of ZVC7610: **50Hz**, **60Hz**, or **Outdoor**
- **Overlay Setting**
  - **Includes Date & Time:** Select this option to display the date & time stamp on the live view image
  - **Enable Opaque:** Select this option to set a black background to the displayed date & time stamp

Video >> Video

- **MJPEG**
  - **Video Resolution:** Select the desired video resolution in three different formats: **VGA**, **QVGA** and **QQVGA**. The highest setting (VGA) gives you better video quality while it uses more resources within your network.
  - **Video Quality:** Select the desired image quality in five different levels: **Lowest**, **Low**, **Medium**, **High**, and **Highest**.
  - **Frame Rate:** Select **Auto** or a proper setting depending on your network status.

4.6 Event Server Configuration

The Event Server menu contains three sub-menus that allow you to upload images to FTP, and send emails with images.



After you complete the required settings for FTP, or Email, click **Test** to test the configuration to see if it is correct or not. After test is successful, click **Apply**.

Event Server Setting>> FTP

- **FTP**
  - **Host Address:** Enter the IP address of the target FTP server
  - **Port Number:** Enter the port number for the FTP server
  - **User Name:** Enter the user name to login to the FTP server
  - **Password:** Enter the password to login to the FTP server
  - **Directory Path:** Enter the destination folder for uploading the images, for example: /Test/
  - **Passive Mode:** Select **Enable** to enable the passive mode

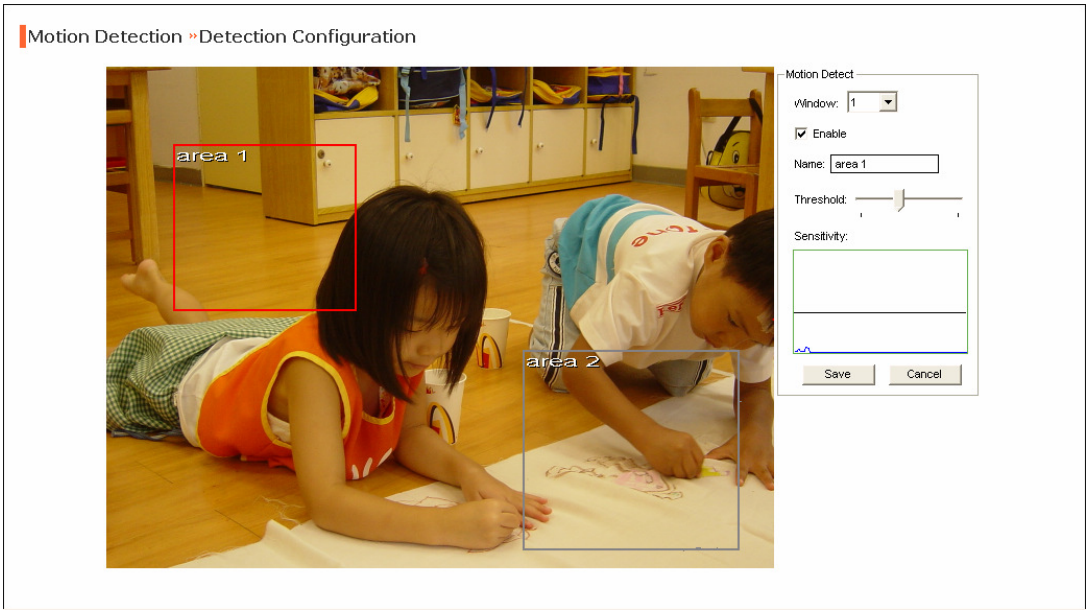
Event Server Setting >> Email

- **Email**
  - **SMTP Server Address:** Enter the mail server address, for example: mymail.com
  - **Sender Email Address:** Enter the email address of the user who will send the email, for example: John@mymail.com
  - **Sender User Name:** Enter the sender email address username to login the mail server
  - **Sender Password:** Enter the sender email address password to login the mail server
  - **Receiver #1 Email Address:** Enter the first email address of the receiver who will receive the email
  - **Receiver #2 Email Address:** Enter the second email address of the receiver who will receive the email

4.7 Motion Detect

The Motion Detect menu contains the command and option that allow you to enable and setup the motion detection feature of the ZVC7610. It provides up to two detecting areas.

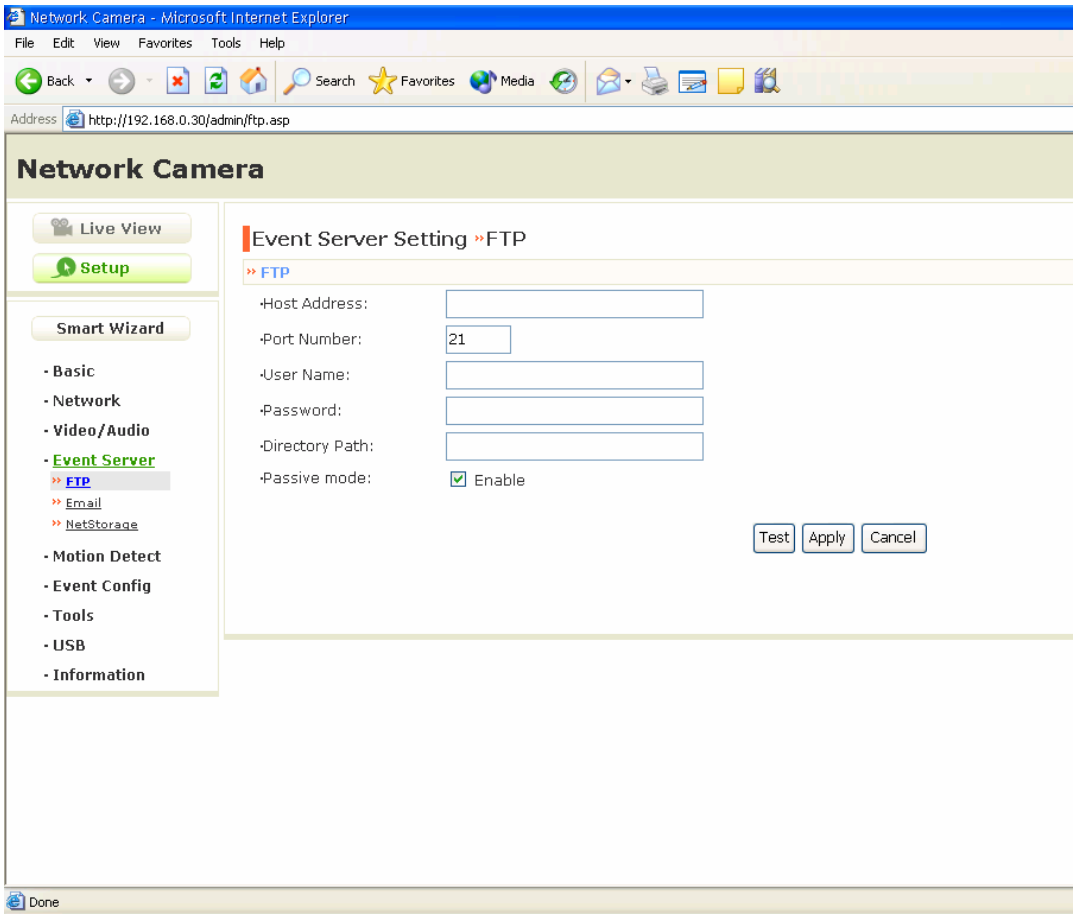
To enable the detecting areas, select **Window 1** or **2** from the drop-down list, and select **Enable**. When the detecting area(s) is enabled, you can use the mouse to move the detecting area(s) and change the area coverage.



- **Name:** Assign a name of the detecting area(s)
- **Threshold:** Move the slide bar to adjust the level for detecting motion and record video

4.8 Event Configuration

The Event Configuration menu contains four sub-menus that provide commands to the configure event profiles.

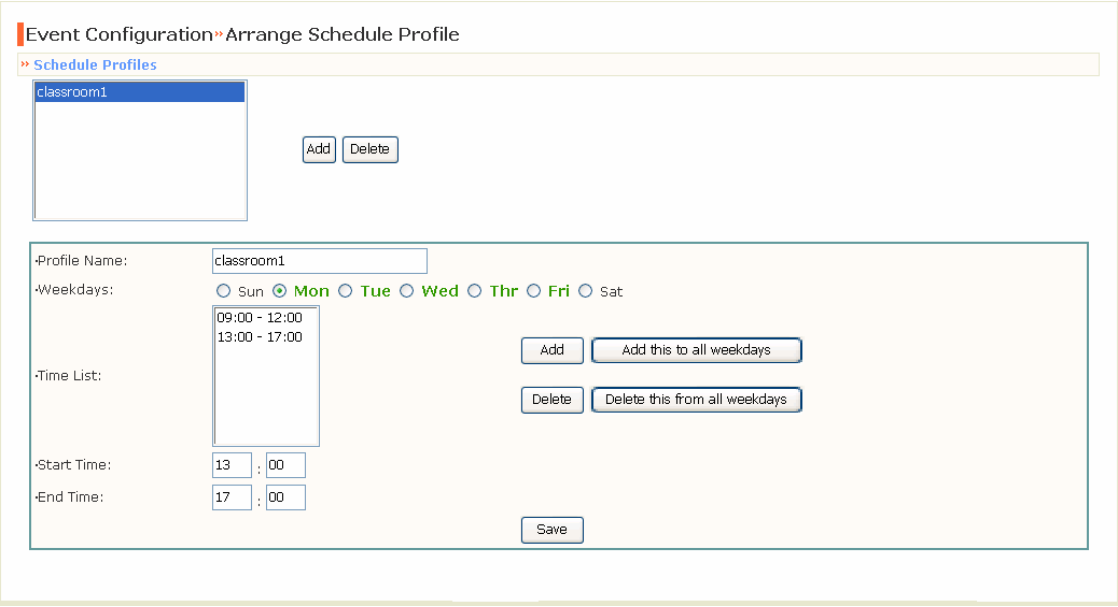


Event Configuration >> General Setting

- **Snapshot/Recording Filename Prefix:** You can assign a given prefix to each new captured file. Leave this option blank to use the default setting.

Event Configuration >> Arrange Schedule Profile

This sub-menu displays the scheduled profile(s). To customize the profile, click **Add** and enter a description for the profile in the prompt dialog window. Click **OK** to add it to the Schedule Profiles list. Click **Delete** to delete the selected profile from the list.



- **Profile Name:** Display profile name(s) that you added to the Schedule Profiles list
- **Weekdays:** Select the day(s), Monday to Friday, which you want to assign in the schedule profile separately. Assigned weekday(s) will display in green color
- **Time List:** Display the period of time that you have assigned within the selected weekday(s). Click **Add this to all weekdays** to assign the same period of time to every weekday(s). Click **Delete this from all weekdays** to remove the selected period from every weekday(s).
- **Start/End Time:** Enter the start and end time and then click **Add** to assign a time period within in the selected weekday.

Event Configuration >> Motion Detect Trigger

Select **Enable** option to enable the trigger function of the ZVC7610 to send captured images of the detecting area(s) to an FTP server, email receiver, Network Storage server, or any connected USB device.

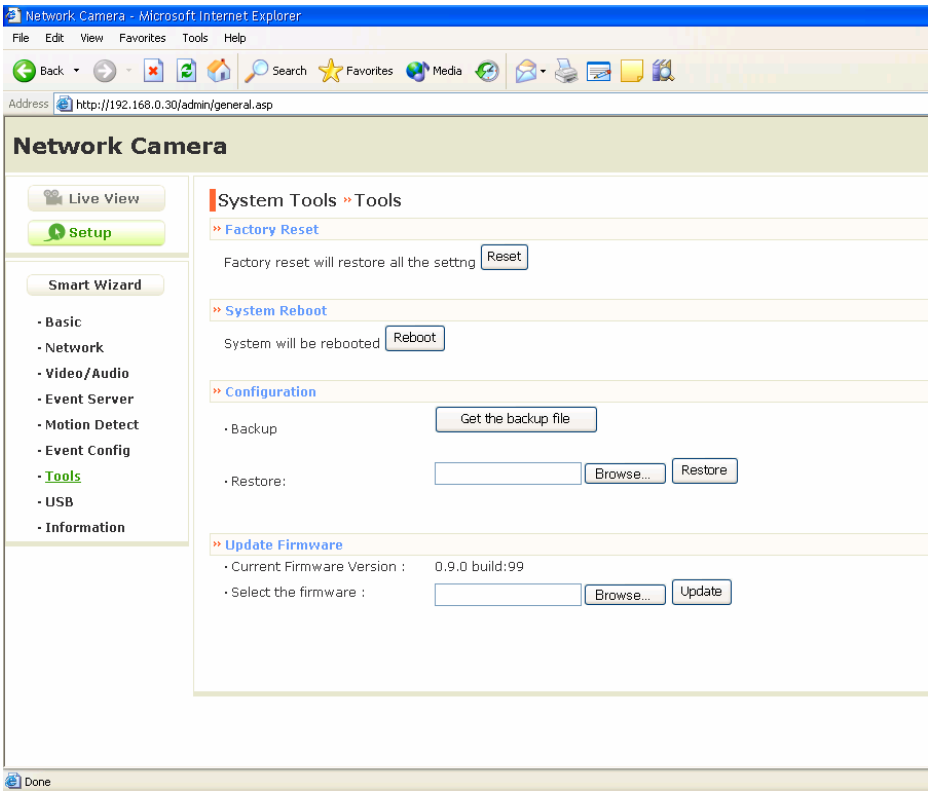
- **Schedule Profile:** Select a Schedule Profile from the drop-down list.
- **Action:** Select a destination for the captured images to be sent to: **Send Email** or **FTP Upload**.

Event Configuration >> Schedule Trigger

You can configure the schedule for trigger function of the ZVC7610 separately with **Email**, or **FTP**. Select **Enable** option on each item, then select a **Schedule Profile** from the drop-down list and set the **Interval** time.

4.9 Tools

The Tools menu provides commands that allow you to restart and/or reset the ZVC7610. You can also backup, restore your configuration, and upgrade firmware for the ZVC7610.



- **Factory Reset**

  Click **Reset** to restore all factory default settings for the ZVC7610.

- **System Reboot**

  Click **Reboot** to restart the ZVC7610. It will power OFF the under then power ON automatically. ZVC7610 configuration will be retained after System Reboot.

- **Configuration**

  You can save your ZVC7610 configuration as a backup file on your computer. You can restore it by retrieving the backup file.

  - **Backup:** Click **Get the backup file** to save the current configuration of the ZVC7610 to your computer.
  - **Restore:** Click **Browse** to locate the backup file and click **Restore** the configuration of the ZVC7610.

- **Update Firmware**

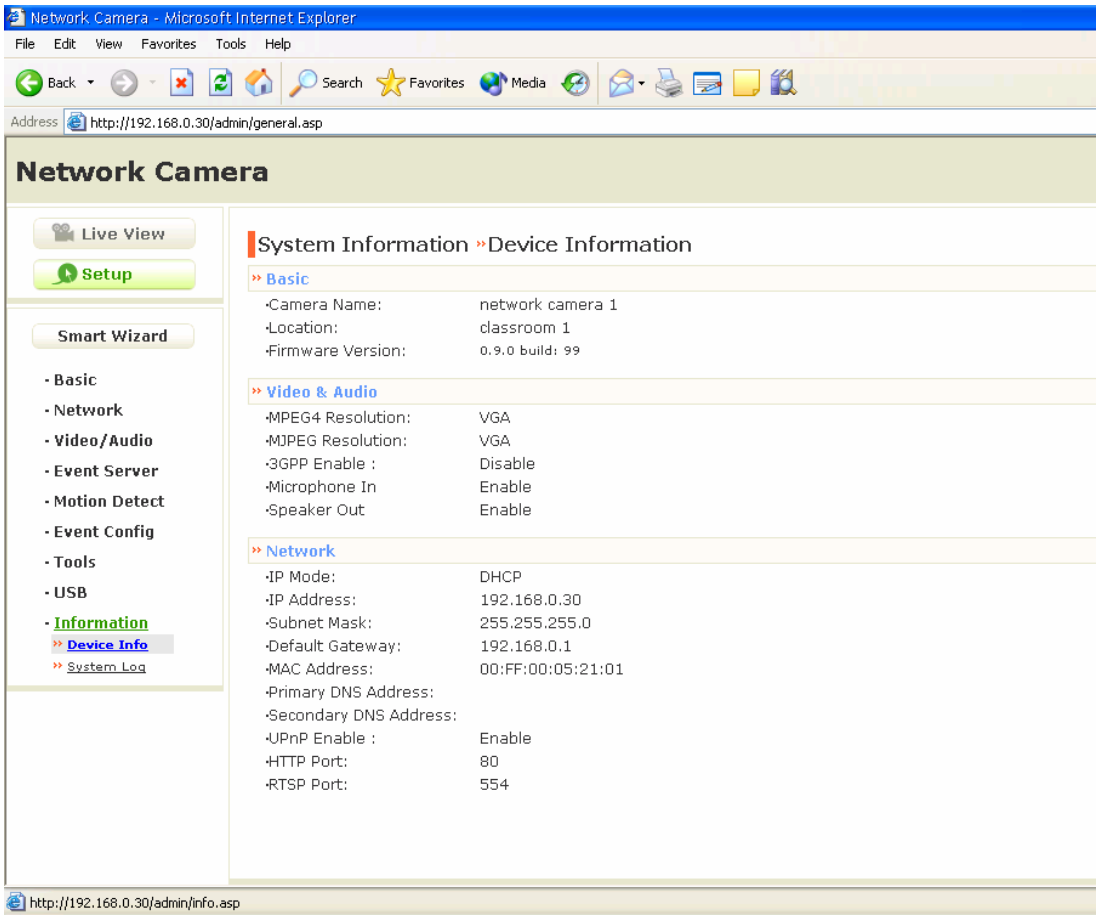
  It displays the current firmware version. You can upgrade it once you obtained a latest version of firmware.

  - **Select the firmware:** Click **Browse** to locate the updated firmware file and click **Update**.

NOTE: ZVC7610 must be power ON during firmware upgrade. Otherwise, the original firmware may corrupt due to the failure of firmware upgrade.

4.10 Information

The Information menu displays the current configuration and events log of the ZVC7610.



- **Device Info**

  Display the Basic, Video, and Network settings of the ZVC7610.

- **System Log**

  This table displays all events log recorded by the system.

CHAPTER 5

APPENDIX

A.1 Specification

- **Image Sensor**

Sensor	1/4” color CMOS
Resolution	640x480

- **Video**

Compression	MJPEG
Video resolution	VGA/QVGA/QQVGA; 30fps max.

- **System Hardware**

Processor	ARM9 base
RAM	16MB SDRAM
ROM	4MB NOR Flash
Power	DC 5V

- **Communication**

LAN	10/100Mbps Fast Ethernet Auto-sensed, Auto-MDIX
Protocol support	TCP/IP, UDP, ICMP, DHCP, NTP, DNS, DDNS, SMTP, FTP, PPPoE, UPnP

- **User Interface**

LAN	One RJ-45 port
Reset	One Reset button Link LED (green)

- **Software**

OS Support	Windows 2000/XP/Vista, Macintosh OSX
Browser	Internet Explorer 6.0 or above, Mozilla Firefox 2.00 or above, Apple Safari 2 or above
Software	***Ultra View*** for playback/ Recording/configuration features

- **Operating Environment**

Temperature	Operation: 5°C ~ 45°C Storage: -15°C ~ 60°C
Humidity	Operation: 20~85% non-condensing Storage: 0% ~ 90% non-condensing

A.2 Glossary of Terms

NUMBERS

10BASE-T 10BASE-T is Ethernet over UTP Category III, IV, or V unshielded twisted-pair media.

100BASE-TX The two-pair twisted-media implementation of 100BASE-T is called 100BASE-TX.

A

ADPCM Adaptive Differential Pulse Code Modulation, a new technology improved from PCM, which encodes analog sounds to digital form.

AMR AMR (Adaptive Multi-Rate) is an audio data compression scheme optimized for speech coding, which is adopted as the standard speech codec by 3GPP.

Applet Applets are small Java programs that can be embedded in an HTML page. The rule at the moment is that an applet can only make an Internet connection to the computer form that the applet was sent.

ASCII American Standard Code For Information Interchange, it is the standard method for encoding characters as 8-bit sequences of binary numbers, allowing a maximum of 256 characters.

ARP Address Resolution Protocol. ARP is a protocol that resides at the TCP/IP Internet layer that delivers data on the same network by translating an IP address to a physical address.

AVI Audio Video Interleave, it is a Windows platform audio and video file type, a common format for small movies and videos.

B

BOOTP Bootstrap Protocol is an Internet protocol that can automatically configure a network device in a diskless workstation to give its own IP address.

C

Communication Communication has four components: sender, receiver, message, and medium. In networks, devices and application tasks and processes communicate messages to each other over media. They represent the sender and receivers. The data they send is the message. The cabling or transmission method they use is the medium.

Connection In networking, two devices establish a connection to communicate with each other.

D

DHCP Developed by Microsoft, DHCP (Dynamic Host Configuration Protocol) is a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network. In some systems, the device's IP address can even change while it is still connected. It also supports a mix of static and dynamic IP addresses. This simplifies the task for network administrators because the software keeps track of IP addresses rather than requiring an administrator to manage the task. A new computer

	can be added to a network without the hassle of manually assigning it a unique IP address. DHCP allows the specification for the service provided by a router, gateway, or other network device that automatically assigns an IP address to any device that requests one.
DNS	Domain Name System is an Internet service that translates domain names into IP addresses. Since domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses every time you use a domain name the DNS will translate the name into the corresponding IP address. For example, the domain name *www.network_camera.com* might translate to *192.167.222.8*.
E	
Enterprise network	An enterprise network consists of collections of networks connected to each other over a geographically dispersed area. The enterprise network serves the needs of a widely distributed company and operates the company's mission-critical applications.
Ethernet	The most popular LAN communication technology. There are a variety of types of Ethernet, including 10Mbps (traditional Ethernet), 100Mbps (Fast Ethernet), and 1,000Mbps (Gigabit Ethernet). Most Ethernet networks use Category 5 cabling to carry information, in the form of electrical signals, between devices. Ethernet is an implementation of CSMA/CD that operates in a bus or star topology.
F	
Fast Ethernet	Fast Ethernet, also called 100BASE-T, operates at 10 or 100Mbps per second over UTP, STP, or fiber-optic media.
Firewall	Firewall is considered the first line of defense in protecting private information. For better security, data can be encrypted. A system designed to prevent unauthorized access to or from a private network. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially Intranets all messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.
G	
Gateway	A gateway links computers that use different data formats together.
Group	Groups consist of several user machines that have similar characteristics such as being in the same department.
H	
HEX	Short for hexadecimal refers to the base-16 number system, which consists of 16 unique symbols: the numbers 0 to 9 and the letters A to F. For example, the decimal number 15 is represented as F in the hexadecimal numbering system. The hexadecimal system is useful because it can represent every byte (8 bits) as two consecutive hexadecimal digits. It is easier for humans to read hexadecimal numbers than binary numbers.

I

Intranet This is a private network, inside an organization or company that uses the same software you will find on the public Internet. The only difference is that an Intranet is used for internal usage only.

Internet The Internet is a globally linked system of computers that are logically connected based on the Internet Protocol (IP). The Internet provides different ways to access private and public information worldwide.

Internet address To participate in Internet communications and on Internet Protocol-based networks, a node must have an Internet address that identifies it to the other nodes. All Internet addresses are IP addresses

IP Internet Protocol is the standard that describes the layout of the basic unit of information on the Internet (the *packet*) and also details the numerical addressing format used to route the information. Your Internet service provider controls the IP address of any device it connects to the Internet. The IP addresses in your network must conform to IP addressing rules. In smaller LANs, most people will allow the DHCP function of a router or gateway to assign the IP addresses on internal networks.

IP address IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packets across the Internet. For example 80.80.80.69 is an IP address. When you "call" that number, using any connection methods, you get connected to the computer that "owns" that IP address.

ISP ISP (Internet Service Provider) is a company that maintains a network that is linked to the Internet by way of a dedicated communication line. An ISP offers the use of its dedicated communication lines to companies or individuals who can't afford the high monthly cost for a direct connection.

J

JAVA Java is a programming language that is specially designed for writing programs that can be safely downloaded to your computer through the Internet without the fear of viruses. It is an object-oriented multi-thread programming best for creating applets and applications for the Internet, Intranet and other complex, distributed network.

L

LAN Local Area Network a computer network that spans a relatively small area sharing common resources. Most LANs are confined to a single building or group of buildings.

M

MJPEG MJPEG (Motion JPEG) composes a moving image by storing each frame of a moving picture sequence in JPEG compression, and then decompressing and displaying each frame at rapid speed to show the moving picture.

MPEG4 MPEG4 is designed to enable transmission and reception of high-quality audio and video over the Internet and next-generation mobile telephones.

N

NAT

Network Address Translator generally applied by a router that makes many different IP addresses on an internal network appear to the Internet as a single address. For routing messages properly within your network, each device requires a unique IP address. But the addresses may not be valid outside your network. NAT solves the problem. When devices within your network request information from the Internet, the requests are forwarded to the Internet under the router's IP address. NAT distributes the responses to the proper IP addresses within your network.

Network

A network consists of a collection of two or more devices, people, or components that communicate with each other over physical or virtual media. The most common types of network are:

LAN – (local area network): Computers are in close distance to one another. They are usually in the same office space, room, or building.

WAN – (wide area network): The computers are in different geographic locations and are connected by telephone lines or radio waves.

NWay Protocol

A network protocol that can automatically negotiate the highest possible transmission speed between two devices.

P

PCM

PCM (Pulse Code Modulation) is a technique for converting analog audio signals into digital form for transmission.

PING

Packet Internet Groper, a utility used to determine whether a specific IP address is accessible. It functions by sending a packet to the specified address and waits for a reply. It is primarily used to troubleshoot Internet connections.

PPPoE

Point-to-Point Protocol over Ethernet. PPPoE is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium, such as DSL or cable modem. All the users over the Ethernet share a common connection.

Protocol

Communication on the network is governed by sets of rules called protocols. Protocols provide the guidelines devices use to communicate with each other, and thus they have different functions. Some protocols are responsible for formatting and presenting and presenting data that will be transferred from file server memory to the file server’s net work adapter Others are responsible for filtering information between networks and forwarding data to its destination. Still other protocols dictate how data is transferred across the medium, and how servers respond to workstation requests and vice versa. Common network protocols responsible for the presentation and formatting of data for a network operating system are the Internetwork Packet Exchange (IPX) protocol or the Internet Protocol (IP). Protocols that dictate the format of data for transferors the medium include token-passing and Carrier Sense Multiple Access with Collision Detection (CSMA/CD), implemented as token-ring, ARCNET, FDDI, or Ethernet. The Router Information Protocol (RIP),a part of

	the Transmission Control Protocol/Internet Protocol (TCP/IP) suite, forwards packets from one network to another using the same network protocol.
R	
RJ-45	RJ-45 connector is used for Ethernet cable connections.
Router	A router is the network software or hardware entity charged with routing packets between networks.
RTP	RTP (Real-time Transport Protocol) is a data transfer protocol defined to deliver **live media** to the clients at the same time, which defines the transmission of video and audio files in real time for Internet applications.
RTSP	RTSP (Real-time Streaming Protocol) is the standard used to transmit **stored media** to the client(s) at the same time, which provides client controls for random access to the content stream.
S	
Server	It is a simple computer that provides resources, such as files or other information.
SIP	SIP (Session Initiated Protocol) is a standard protocol that delivers the real-time communication for Voice over IP (VoIP), which establishes sessions for features such as audio and video conferencing.
SMTP	The Simple Mail Transfer Protocol is used for Internet mail.
SNMP	Simple Network Management Protocol. SNMP was designed to provide a common foundation for managing network devices.
Station	In LANs, a station consists of a device that can communicate data on the network. In FDDI, a station includes both physical nodes and addressable logical devices. Workstations, single-attach stations, dual-attach stations, and concentrators are FDDI stations.
Subnet mask	In TCP/IP, the bits used to create the subnet are called the subnet mask.
T	
(TCP/IP)	Transmission Control Protocol/Internet Protocol is a widely used transport protocol that connects diverse computers of various transmission methods. It was developed y the Department of Defense to connect different computer types and led to the development of the Internet.
Transceiver	A transceiver joins two network segments together. Transceivers can also be used to join a segment that uses one medium to a segment that uses a different medium. On a 10BASE-5 network, the transceiver connects the network adapter or other network device to the medium. Transceivers also can be used on 10BASE-2 or 10BASE-T networks to attach devices with AUI ports.
U	
UDP	The User Datagram Protocol is a connectionless protocol that resides above IP in the TCP/IP suite

User Name	The USERNAME is the unique name assigned to each person who has access to the LAN.
Utility	It is a program that performs a specific task.
UTP	Unshielded twisted-pair. UTP is a form of cable used by all access methods. It consists of several pairs of wires enclosed in an unshielded sheath.

W

WAN	Wide-Area Network. A wide-area network consists of groups of interconnected computers that are separated by a wide distance and communicate with each other via common carrier telecommunication techniques.
WEP	WEP is widely used as the basic security protocol in Wi-Fi networks, which secures data transmissions using 64-bit or 128-bit encryption.
Windows	Windows is a graphical user interface for workstations that use DOS.
WPA	WPA (Wi-Fi Protected Access) is used to improve the security of Wi-Fi networks, replacing the current WEP standard. It uses its own encryption, Temporal Key Integrity Protocol (TKIP), to secure data during transmission.
WPA2	Wi-Fi Protected Access 2, the latest security specification that provides greater data protection and network access control for Wi-Fi networks. WPA2 uses the government-grade AES encryption algorithm and IEEE 802.1X-based authentication, which are required to secure large corporate networks.